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(54) COSMETIC THERAPEUTIC PREPARATIONS CONTAINING  
ANIMAL ORGAN EXTRACTS

(71) We, PREPHAR PROSPECTION DE RECHERCHES PHARMACEUTIQUES S.A. a Swiss Body Corporate, of Schaffhausen, Switzerland, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to cosmetic preparations for treatment of cellulitis and skin dehydration, for epidermic regeneration, and for the treatment of wrinkles and of the breast, comprising, as the active agent, an extract rich in various types of polysaccharides of different degrees of polymerisation, part of which are linked to non-glucide structures.

The connective tissue, which previously had been considered simply as a supporting and tissue connecting factor, has gained in recent years biological importance. This fact has led to a revision of the function of said connective tissue; in fact, a role of paramount importance as a centre of exchange, transformation and many other essential biological processes, is now attributed to it. Under this new and more complex significance, the anomalies of the connective tissue, which per se already often cause serious disturbances, are considered to cause impairment of the general state of health of the human organism.

Cellulitis, which besides being a functional anomaly also seriously impairs the harmony and beauty of the body, is one of the most common malfunctions, the origin of which is attributed to changes of said important tissue.

It has now been found that a particular extract, herein named "natural glucidamines", rich in various types of polysaccharides of different degrees of polymerisation, part of which are linked to non-glucide structures, is highly efficacious in the treatment of cellulitis.

[Price 5s. 0d. (25p)]

Said natural glucidamines can be extracted from the hides and from other animal organs rich in connective tissue. The process for the extraction of said natural glucidamines from rabbit hides is set forth hereinbelow as an example:

The dried hides are contacted with a highly alkaline solution of thioglycolates or sulphides until the fur is completely dissolved. Subsequently, said hides are washed and allowed to swell in water for about 24 hours. Then they are transferred to a refrigerator and frozen at a temperature of  $-20^{\circ}\text{C}$ , and subsequently are finely ground. The resulting paste is degreased and dried twice with five and four acetone volumes, respectively, while stirring. The powder residue is dissolved in 15 volumes of water, upon raising the pH to 9 with 2N sodium hydroxide and upon boiling the resulting mixture for 15 minutes.

The solution thus obtained is allowed to cool and is then filtered, and the active agents contained in the solution are precipitated by the addition of 1.5 volumes of acetone, after the pH has been lowered to 4.5 with acetic acid. The collected precipitate is dehydrated with water-miscible solvents (alcohol or acetone) and finally with di-ethyl ether. The crude powder thus obtained is dissolved again in 10 volumes of water and digested with papain at a pH of 6.5 for 24 hours at a temperature of  $60^{\circ}\text{C}$ .

The resulting mixture is filtered and the active agents are precipitated again with 1.5 acetone volumes after the pH has been lowered to 4.8 with acetic acid. The resulting precipitate is dried with acetone, subsequently with ether, and finally under vacuum.

The natural glucidamines thus obtained are in the form of a slightly brown powder having a characteristic odour. They form stable and heat-resistant colloidal solutions in water, provided that the pH is neutral or

slightly alkaline. On the contrary, in an acid medium, said glucidamines are rapidly degraded. They are insoluble in all of the organic solvents.

- 5 The following three fractions can be essentially identified in the glucidamines.

a) Partially depolymerised glycoproteins containing hexoses, hexosamines and short chain proteins;

- 10 b) Depolymerized polysaccharides consisting of hexosamines and uronic acids;

c) Sulphonated polysaccharides containing  $-SO_3H$  groups, partially acetylated hexosamines and uronic acids.

- 15 The fractions which constitute said extract can be detected by chromatography, electrophoresis or by the characteristic reactions of the three types of compounds.

The natural glucidamines showed, in tests carried out on animals, a basic activity of two types, that is: anti-edema and anti-lipemia, the former being attributable to the glycoprotein fraction; they have, furthermore, a valuable anti-inflammatory action, and the depolymerized constituents of the acid polysaccharide fractions have regenerating and restoring properties for the impaired connective tissue. The natural glucidamines did not exhibit any general, acute or chronic toxicity. The topical application to humans of highly concentrated aqueous solutions was always perfectly tolerated even for prolonged periods; furthermore, a direct beneficial effect was observed on the skin which, after said treatments, was more soft, toned up, more hydrated and in general revitalized.

Owing to their particular composition, rich in elements which constitute the vital structure of the human organism, the natural glucidamines have valuable activities which can be utilised with outstanding results in the cosmetic field. They give excellent results:

- 45 1) In the treatment of cellulitis, the anti-edema and anti-lipemia activities being utilised to inhibit the local edema and the abnormal accumulation of lipids, which are characteristic symptoms of cellulitis;

- 50 2) In the treatment of cutaneous dehydration, the added normal elements which constitute the epidermis allowing the hydric equilibrium between the skin and atmosphere to be reached;

- 55 3) In the epidermic regeneration, the treatment with glucidamines carrying out a restoring revitalisation of the skin which becomes more soft, more velvety and revitalised.

- 60 Furthermore, the natural glucidamines have great coadjuvant value in the treatment of wrinkles of the breast, and in general show their beneficial effects in all of the cosmetics which come into contact with the skin.

### Examples of Cosmetic Preparations Containing Glucidamines

#### I

#### Anticellulitis cream

Glucidamines	1	g.	70
Cetylstearyl Alcohol	15	"	
Decyl Oleate	20	"	
Propyl p-hydroxybenzoate	0.0665	"	
Methyl p-hydroxybenzoate	0.1335	"	
Sorbic Acid	0.2	"	75
Glycerol	5	"	
Poly(oxyethylene)sorbitan monostearate	3.5	"	
Sorbitan monostearate	2.2	"	
Distilled water	Difference to 100 g.		80

#### II

#### Anticellulitis cream

Glucidamines	1.5	g	
Ethyl nicotinate	0.04	"	
Lanolin	5	"	85
Glycerol stearate	4	"	
2-Octyl-dodecanol	12	"	
Cetyl alcohol	8	"	
Poly(oxyethylene)lanolin	10	"	
Propylene glycol	5	"	90
Propyl p-hydroxybenzoate	0.0665	"	
Methyl p-hydroxybenzoate	0.1335	"	
Sorbic acid	0.2	"	
Distilled water	Difference to 100 g.		95

#### III

#### Anticellulitis Cream

Glucidamines	1	g.	
White Beeswax	3	"	
Spermaceti	2	"	
Isopropyl myristate	10	"	100
Mixed palmitic and stearic acid mono- and diglycerides	8	"	
Glycerol	5	"	
Propyl p-hydroxybenzoate	0.0665	"	
Methyl p-hydroxybenzoate	0.1335	"	105
Sorbic acid	0.2	"	
Distilled water	Difference to 100 g.		

#### IV

#### Hydrating cream

Glucidamines	2	g.	110
Cholesterol stearate	5	"	
Poly(oxyethylene)condensates of fatty alcohols	10	"	
Glycerol	8	"	
Silicone oil	1	"	115
Almond oil	5	"	
Propyl p-hydroxybenzoate	0.0665	"	
Methyl p-hydroxybenzoate	0.1335	"	
Sorbic acid	0.2	"	
Distilled water	Difference to 100 g.		120

#### V

#### Revitalizing skin cream

Glucidamines	1.5	g	
Cholesterol	2.5	"	
Vitamin A	1000	Units	125
Vitamin E	0.01	g.	
Wheat germ oil	3.4	"	
Sucrose palmitate	2	"	
Cetyl alcohol	10	"	
Ethylene glycol stearate	5	"	130

	Poly(oxyethylene)sorbitan mono-	
	oleate	3 "
	Propyl p-hydroxybenzoate	0.0665 g.
	Methyl p-hydroxybenzoate	0.1335 "
5	Sorbic acid	0.2 "
	Distilled water	Difference to 100 g.

The application of the above compositions is carried out according to the methods commonly used in the cosmetic field, once or a number of times per day, depending upon the necessity.

#### WHAT WE CLAIM IS:—

1. Per cutem cosmetic preparations, suitable for the treatment of cellulitis and of cutaneous dehydration, for epidermic regeneration, and for the treatment of wrinkles and of the breast, containing a topically administrable carrier and as the active agent, a natural extract obtained from hides or other animal organs rich in connective tissue, said extract herein being names "natural glucida-

mines" and comprising:

- a) partially depolymerized glycoproteins, containing hexoses, hexosamines and short chain proteins;
- b) depolymerized polysaccharides consisting of hexosamines and uronic acids; and
- c) sulphonated polysaccharides containing —SO<sub>3</sub>H groups, partially acetylated hexosamines and uronic acids.

2. A cosmetic preparation as claimed in claim 1 in the form of a topically applicable cream.

3. A cosmetic preparation as claimed in claim 1, substantially as hereinbefore described with reference to any one of the examples.

For the Applicants:  
**MATTHEWS, HADDAN & CO.,**  
 Chartered Patent Agents,  
 31/32 Bedford Street,  
 Strand, London, W.C.2.

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